AGENDA ITEM
NO. 2

CITY OF MORGAN HILL

MEMORANDUM

To: **PLANNING COMMISSION**

Date: **May 9, 2006**

From: **COMMUNITY DEVELOPMENT DEPARTMENT**

Subject: **USE PERMIT APPLICATION, UP-06-04: CONCORD- T-MOBILE**

REQUEST

The applicant is requesting approval of a conditional use permit to allow the installation of a 3 panel antennas mounted around the roof top of an existing industrial building. The accessory equipment will be on the ground screened by an existing CMU trash enclosure. The building is located at 15555 Concord Circle. (APN: 817-06-035)

RECOMMENDATION

Environmental Assessment:	Categorically exempt in accordance with Section 15303 of the CEQA Guidelines
Application, UP-06-04:	Approval subject to the findings and conditions of the attached Resolution.
Processing Deadline:	October 7, 2006

CASE ANALYSIS

The applicant is requesting approval to install six telecommunications panel antennas and accessory equipment structure on the roof top of an existing industrial building, located at 15555 Concord Circle in the PUD (Planned Unit Development) Industrial District. For a detailed description of the proposed use, please refer to the applicant's Letter of Justification and Statement of Operations (attached for the Commission's reference).

Conditional Use Permit

The required findings for a Conditional Use Permit are contained in Section 18.54.050(B) of the Municipal Code and read as follows:

A. The site is suitable and adequate for the proposed use.

B. The proposed use and design would not have a substantial adverse effect on traffic circulation and on the planned capacity of the street system.

C. The proposed use at the location will not adversely affect the peace, health, safety, morals or welfare of persons residing or working in the surrounding area, or impair the utility or value of property of other persons located in the vicinity of the site, or be detrimental to public health, safety or general welfare.

D. The design of the project is compatible with existing and proposed development within the district and its surroundings.

Site Suitability

The surrounding uses are built out industrial buildings with a variety of uses from administrative offices, research and development, and small manufacturing.

The proposed antennas and equipment are located in the rear of the building, furthest away from the public right of way. The applicant proposes to lease a 170 square feet area of an existing enclosure for mechanical equipment to screen the proposed equipment cabinets. There will be coax cable tray going up the exterior wall to the rooftop covered with a concealment to mimic a rain gutter, painted to match the exiting building. There are three proposed antennas mounted on the North, West and South facing corners of a three foot high parapet wall in the rear (north elevation) of the building. For the Commission's reference, a photo simulation identifying the placement and visibility of the antennas is attached to this report.

Circulation

According to the applicant's Letter of Justification, the use will be unmanned. A T-Mobile technician may visit the site once a month for routine maintenance. Access to the site will be provided via Concord Circle behind the building in a gated enclosure leasing area. The antennas will be accessed through the building to the rooftop. The proposed use would not have a substantial adverse effect on traffic circulation or on the planned capacity of the street system.

General Welfare

The proposed use will not adversely affect the peace, health, safety, morals or welfare of persons residing or working in the surrounding area, or impair the utility or value of property of other persons located in the vicinity of the site, or be detrimental to the public health, safety or general welfare. The proposed use is consistent with the use of the site and the general character of the surrounding area. The facility will not utilize hazardous

materials, equipment or processes. Cellular operations including PCS frequencies would be used which would not harm or damage persons or properties. (Commissioners refer to the attached Hammett & Edison, Engineers RF analysis.)

Compatibility

The panels and equipment structure will be compatible with the surrounding uses and existing development on the site. The proposed panel antennas are mounted to the existing parapet walls with screen boxes covering them up panted and textured to match the existing walls, while the equipment cabinet will be screened by an existing trash enclosure on the ground. The proposed antennas could not be placed on the inside of the parapet wall and integrated into the structure, without damaging the integrity of the parapet wall and roof. To address any aesthetic concerns staff has recommended as a condition that the antennas be reviewed by the ARB subcommittee, before gaining a building permit. The lease area will comply with all setback and height requirements of the PUD-Industrial District.

RECOMMENDATION

Staff believes that the findings required for approval of Conditional Use Permit, UP-06-04: Concord- T-Mobile, can be made for the proposed telecommunications panel antennas and equipment structure and have provided the Resolution of Approval.

Attachments:

1. Approval Resolution
2. Applicant's Letter of Justification and Statement of Proposed Operations
3. Photo Simulations
4. Radio Frequency Electromagnetic Fields Study

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RESOLUTION NO.

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORGAN HILL APPROVING A CONDITIONAL USE PERMIT TO ALLOW THE INSTALLATION OF THREE TELECOMMUNICATIONS ANTENNAS AND ASSOCIATED EQUIPMENT CABINETS ON THE ROOF TOP OF AND EXISTING INDUSTRIAL BUILDNG LOCATED AT 15555 CONCORD CIRCLE. (APN: 817-06-035)

WHEREAS, such request was considered by the Planning Commission at their regular meeting of May 9, 2006, at which time the Planning Commission approved application UP-06-04 Concord-T-Mobile; and

WHEREAS, testimony received at a duly-noticed public hearing, along with exhibits and drawings and other materials have been considered in the review process.

NOW, THEREFORE, THE MORGAN HILL PLANNING COMMISSION DOES RESOLVE AS FOLLOWS:

SECTION 1. The approved project is consistent with the Zoning Ordinance and the General Plan.

SECTION 2. The project is categorically exempt from environmental assessment in accordance with Section 15303 of the State CEQA Guidelines.

SECTION 3. The proposed use permit amendment has been found consistent with the criteria for use permit approval contained in Section 18.54.050 of the Municipal Code.

SECTION 4. The approved project shall be subject to the following conditions:

A. Signed Resolutions. Within 30 days of Use Permit approval, the applicant shall submit two (2) signed copies of this Resolution No. to the Planning Division.

B. Time Limitations. The Use Permit approval granted under this Resolution shall remain in effect for twelve (12) months from the effective date of this Resolution. Failure to commence the use within this term shall result in termination of approval unless an extension of time is granted with a showing of just cause prior to the expiration date.

C. Use Approval. The use shall operate consistent with the applicant's Statement of Proposed Operations, date stamped March 7, 2006, on file with the Planning Division.

D. Annual Review. In accordance with Section 18.54.090 of the Municipal Code, the Community Development Department shall conduct an annual

review of the approved use for compliance with specified conditions. The Department may initiate corrective action as specified in the aforementioned Code Section as necessary to ensure compliance with said conditions.

E. Defense and indemnity. Applicant agrees to defend and indemnify and hold City, its officers, agents, employees, officials and representatives free and harmless from and against any and all claims, losses, damages, injuries, costs and liabilities arising from any suit for damages or for equitable or injunctive relief which is filed against City by reason of its approval of applicant's project. In addition, developer shall pay all pre-tender litigation costs incurred on behalf of the City including City's attorney's fees and all other litigation costs and expenses, including expert witnesses, required to defend against any lawsuit brought as a result of City's approval or approvals, but shall not be required to pay any litigation from the City. However, developer shall continue to pay reasonable internal City administrative costs, including but not limited to staff time and expense spent on the litigation, after tender is accepted.

F. Other Conditions:

1. Submit minimum six (6) complete sets of working drawings and specifications. Building plans shall be drawn at a minimum ¼" scale Minimum sheets size shall be 18"x24". Submit minimum– six (6) complete sets of drawings for all commercial and or industrial buildings. (UBC 106.3.3)
2. Structural Calculations are required for roof-top antennas
3. There shall be joint use of the facility with emergency services of the City, dependent upon technological feasibility and a written approval/lease agreement between the city and the property owner.
4. Any user of the site must remove the equipment (or be financially responsible) if the site is abandoned or the equipment is switched out.
5. Following the commencement of operations, field tests shall be conducted to ensure radio frequency electromagnetic field environments do not exceed Federal guidelines. The results of the test shall be submitted to the Morgan Hill Planning Department for filing and future reference.
6. RF warning signs in English and Spanish shall be posted around the equipment cabinets an on the roof top near the antennas.
7. The antennas will require approval of the ARB subcommittee to address any design concerns, prior to approval of a building permit.

PASSED AND ADOPTED THIS 9th DAY OF MAY, 2006, AT A REGULAR MEETING OF THE PLANNING COMMISSION BY THE FOLLOWING VOTE:

AYES: COMMISSIONERS:

NOES: COMMISSIONERS:

ABSTAIN: COMMISSIONERS:

ABSENT: COMMISSIONERS:

ATTEST: **APPROVED:**

FRANCES O. SMITH
Deputy City Clerk

Ralph Lyle, CHAIR

AFFIDAVIT

I, _____, applicant, hereby agree to accept and abide by the terms and conditions specified in this resolution.

_____
Applicant

_____
Date

PARSONS

185 Berry Street, Suite 5300 • San Francisco, California 94107 • Fax (415) 495-6277 • www.parsons.com

PLANNING DEPT.
MAR 07 2006
CITY OF MORGAN HILL

February 6, 2006

City of Morgan Hill
Community Development Department
Planning Division
17555 Peak Avenue
Morgan Hill, CA 95037

RE: T-Mobile proposal for locating stealth antennas on rooftop
Location: Sun Valley Technical Repair/ 15555 Concord Circle, Morgan Hill/ 817-06-035

Dear Planning Division:

T-Mobile proposes to construct a wireless telecommunications facility at the above referenced location. T-Mobile proposes to install antennas inside existing roof parapet on the property, as well as additionally placing associated equipment cabinets on the ground. Please see attached plans and photo simulations for further detail.

As required, the following is T-Mobile's letter of justification for the project:

1 Is the site suitable and adequate for the proposed site? Yes. The base zoning is PD-Industrial.

2 Would the proposed use and design have a substantial adverse effect on traffic circulation and on the planned capacity of the street system? No. The site is unmanned. A T-Mobile technician may visit the site once a month for routine maintenance. The technician requires no special parking as he/ she drives a small utility vehicle.

3 Would the proposed use at the location requested adversely affect the peace, health, safety, morals or welfare of persons residing or working in the surrounding area or impact the utility or values of property of other persons located in the vicinity of the site or be detrimental to public health, safety, or general welfare? No. The proposed addition will not affect the peace, health, safety, morals or welfare of persons residing or working in the area, nor will it be detrimental to public health, safety or general welfare. Please see attached EMF Report.

4 Is the design of the project compatible with the existing and proposed development within the district and its surroundings? Yes. The proposed screened antennas will be located within a light industrial district, an allowed zone for telecommunication facilities.

5 Will the proposed use allow retail sales of groceries, food or beverage items upon automobile service station promises? No.

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In addition, T-Mobile statement of proposed operations as follows:

The proposed wireless communications facility will not create any nuisance or be detrimental to the health, safety or general welfare, of persons residing or working in the neighborhood. T-Mobile technology does not interfere with any other forms of private or public communications systems, operating under FCC regulations.

After construction of the facility, the site will be serviced once a month, during a routine scheduled maintenance window by a service technician. The site is unmanned and is a self-monitored facility. There will be no impact on parking or traffic in the area. Please see attached EMF Report and project plans for details on equipment used at the facility. There will be no use of hazardous materials.

Thank you for your review of the proposal. Please feel free to contact me anytime at 415. 962. 1657 or at Audrey.Smith@Parsons.com with any questions or concerns.

Sincerely,

Audrey Smith
Parsons on behalf of T-Mobile

Attachments

HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
RADIO AND TELEVISION

PLANNING DEPT.
MAR 07 2006
CITY OF MORGAN HILL

WILLIAM F. HAMMETT, P.E.
DANE E. ERICKSEN, P.E.
STANLEY SALEK, P.E.
ROBERT D. WELLER, P.E.
MARK D. NEUMANN, P.E.
ROBERT P. SMITH, JR.
RAJAT MATHUR

ROBERT L. HAMMETT, P.E.
1920-2002
EDWARD EDISON, P.E.

BY E-MAIL AUDREY.SMITH@PARSONS.COM

February 5, 2006

Ms. Audrey Smith
Parsons
185 Berry Street
Suite 5300
San Francisco, California 94106

Dear Audrey:

As you requested, we have analyzed the RF exposure conditions near the T-Mobile base station (Site No. SF14156) proposed to be located at 15555 Concord Circle in Morgan Hill, California. An electronic copy of our report is enclosed. Fields in publicly accessible areas at the site are calculated to be well below the applicable limits.

We appreciate the opportunity to be of service and would welcome any questions on this material. Please let me know if we may be of additional assistance.

Sincerely yours,

Bill Hammett

William F. Hammett

tm

Enclosure

e-mail: bhammett@h-e.com
US Mail: Box 280068 • San Francisco, California 94128
Delivery: 470 Third Street West • Sonoma, California 95476
Telephone: 707/996-5200 San Francisco • 707/996-5280 Facsimile • 202/396-5200 D.C.

T-Mobile • Proposed Base Station (Site No. SF14156)
15555 Concord Circle • Morgan Hill, California

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of T-Mobile, a personal wireless telecommunications carrier, to evaluate the base station (Site No. SF14156) proposed to be located at 15555 Concord Circle in Morgan Hill, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Prevailing Exposure Standards

The U.S. Congress requires that the Federal Communications Commission ("FCC") evaluate its actions for possible significant impact on the environment. In Docket 93-62, effective October 15, 1997, the FCC adopted the human exposure limits for field strength and power density recommended in Report No. 86, "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements ("NCRP"). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent Institute of Electrical and Electronics Engineers ("IEEE") Standard C95.1-1999, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," includes nearly identical exposure limits. A summary of the FCC's exposure limits is shown in Figure 1. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

The most restrictive limit for exposures of unlimited duration to radio frequency energy for several personal wireless services are as follows:

Personal Wireless Service	Approx. Frequency	Occupational Limit	Public Limit
Personal Communication ("PCS")	1,950 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Cellular Telephone	870	2.90	0.58
Specialized Mobile Radio	855	2.85	0.57
[most restrictive frequency range]	30–300	1.00	0.20

General Facility Requirements

Base stations typically consist of two distinct parts: the electronic transceivers (also called "radios" or "channels") that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The transceivers are often located at ground level and are connected to the antennas by coaxial cables about 1 inch thick. Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward

the horizon, with very little energy wasted toward the sky or the ground. Along with the low power of such facilities, this means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation," dated August 1997. Figure 2 attached describes the calculation methodologies, reflecting the facts that a directional antenna's radiation pattern is not fully formed at locations very close by (the "near-field" effect) and that the power level from an energy source decreases with the square of the distance from it (the "inverse square law"). The conservative nature of this method for evaluating exposure conditions has been verified by numerous field tests.

Site and Facility Description

Based upon information provided by T-Mobile, including drawings by Michael Wilk Architecture, dated January 20, 2006, it is proposed to mount six RFS Model APX16PV-16PVL-E directional panel antennas above the roof of the two-story building located at 15555 Concord Circle in Morgan Hill. The antennas would be mounted with 2° downtilt at an effective height of about 39 feet above ground, 6 feet above the roof, and would be oriented in pairs toward 30°T, 210°T, and 300°T. The maximum effective radiated power in any direction would be 650 watts, representing simultaneous operation of four channels. There are no reported other wireless base stations installed nearby.

Study Results

For a person anywhere at ground, the maximum ambient RF exposure level due to the proposed T-Mobile operation is calculated to be 0.00092 mW/cm^2, which is 0.092% of the applicable public exposure limit. The maximum calculated level inside the subject building is 0.11% of the public exposure limit; the maximum calculated level at the second-floor elevation of any nearby building is 1.1% of the public exposure limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels. Areas on the roof of the subject building may exceed the public limit.

Recommended Mitigation Measures

It is recommended that the roof hatch be kept locked, so that the T-Mobile antennas are not accessible to the general public. To prevent occupational exposures in excess of the FCC guidelines, no access within 2 feet in front of the T-Mobile antennas themselves, such as might occur during building maintenance activities, should be allowed while the site is in operation, unless other measures can be

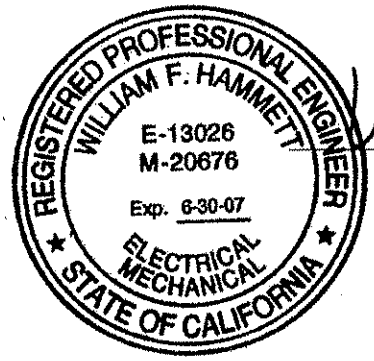
demonstrated to ensure that occupational protection requirements are met. Posting explanatory warning signs* at the roof hatch and at each transmitting antenna, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet FCC-adopted guidelines.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that the base station proposed by T-Mobile at 15555 Concord Circle in Morgan Hill, California, can comply with the prevailing standards for limiting human exposure to radio frequency energy and, therefore, need not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Posting of explanatory signs is recommended to establish compliance with occupational exposure limitations.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration Nos. E-13026 and M-20676, which expire on June 30, 2007. This work has been carried out by him or under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.



William F. Hammett, P.E.

February 5, 2006

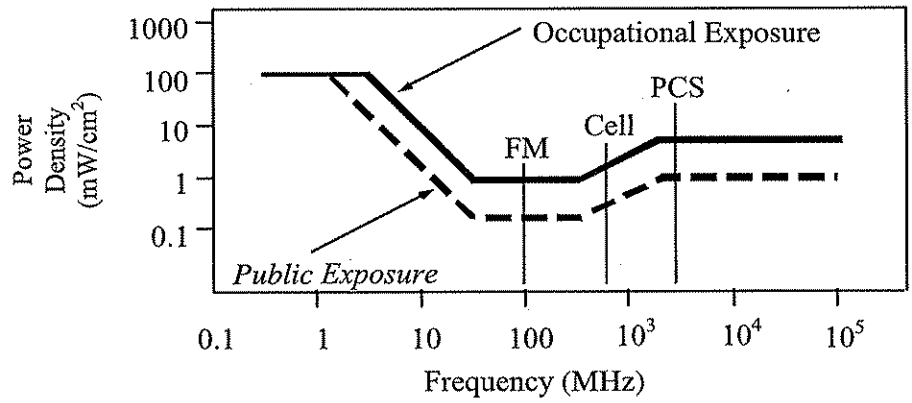
* Warning signs should comply with ANSI C95.2 color, symbol, and content conventions. In addition, contact information should be provided (*e.g.*, a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required.

FCC Radio Frequency Protection Guide

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The FCC adopted the limits from Report No. 86, "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements, which are nearly identical to the more recent Institute of Electrical and Electronics Engineers Standard C95.1-1999, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz." These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

As shown in the table and chart below, separate limits apply for occupational and public exposure conditions, with the latter limits (in *italics* and/or dashed) up to five times more restrictive:

Frequency	Electromagnetic Fields (f is frequency of emission in MHz)					
Applicable Range (MHz)	Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm^2)	
0.3 – 1.34	614	*614*	1.63	*1.63*	100	*100*
1.34 – 3.0	614	*823.8/f*	1.63	*2.19/f*	100	*180/f^2*
3.0 – 30	1842/ f	*823.8/f*	4.89/ f	*2.19/f*	900/ f^2	*180/f^2*
30 – 300	61.4	*27.5*	0.163	*0.0729*	1.0	*0.2*
300 – 1,500	$3.54\sqrt{f}$	*$1.59\sqrt{f}$*	$\sqrt{f}/106$	*$\sqrt{f}/238$*	f/300	*f/1500*
1,500 – 100,000	137	*61.4*	0.364	*0.163*	5.0	*1.0*



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. However, neither of these allowances is incorporated in the conservative calculation formulas in the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) for projecting field levels. Hammett & Edison has built those formulas into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radio sources. The program allows for the description of buildings and uneven terrain, if required to obtain more accurate projections.

RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The maximum permissible exposure limits adopted by the FCC (see Figure 1) apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits.

Near Field.

Prediction methods have been developed for the near field zone of panel (directional) and whip (omnidirectional) antennas, typical at wireless telecommunications cell sites. The near field zone is defined by the distance, D, from an antenna beyond which the manufacturer's published, far field antenna patterns will be fully formed; the near field may exist for increasing D until some or all of three conditions have been met:

$$1)\ D > \frac{2h^2}{\lambda} \qquad 2)\ D > 5h \qquad 3)\ D > 1.6\lambda$$

where h = aperture height of the antenna, in meters, and
λ = wavelength of the transmitted signal, in meters.

The FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives this formula for calculating power density in the near field zone about an individual RF source:

$$\text{power density}\quad S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}, \quad \text{in mW/cm}^2,$$

where θ_{BW} = half-power beamwidth of antenna, in degrees, and
P_{net} = net power input to the antenna, in watts.

The factor of 0.1 in the numerator converts to the desired units of power density. This formula has been built into a proprietary program that calculates distances to FCC public and occupational limits.

Far Field.

OET-65 gives this formula for calculating power density in the far field of an individual RF source:

$$\text{power density}\quad S = \frac{2.56 \times 1.64 \times 100 \times RFF^2 \times ERP}{4 \times \pi \times D^2}, \quad \text{in mW/cm}^2,$$

where ERP = total ERP (all polarizations), in kilowatts,
RFF = relative field factor at the direction to the actual point of calculation, and
D = distance from the center of radiation to the point of calculation, in meters.

The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density. This formula has been built into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radiation sources. The program also allows for the description of uneven terrain in the vicinity, to obtain more accurate projections.